

# A FLEXIBLE SHAPE-RETAINING LIGHTING DEVICE

Inventor: Blum, Ariana L.

5

## FIELD OF THE INVENTION

The present invention relates to lighting devices in general and, in particular, to a flexible shape-retaining lighting device incorporating a rope light.

## BACKGROUND OF THE INVENTION

10

Conventional lighting devices include a light bulb of a relatively rigid pre-selected shape, which first end fits into a light bulb socket and which second end fits in a shade or cover of sorts. Due to the fixed size and shape of the light bulb, it is very difficult, if not impossible, for the user to change the shape of conventional lighting devices.

15

It has long been desired to decorate a variety of objects with strings of lights. Generally, this is accomplished by a plurality of light bulbs connected in parallel between two long wires, and the wires are strung or hung about the object to be decorated. These strings of light suffer from the disadvantage that they are relatively large in size and thus cannot be used to decorate small objects, and cannot be shaped at the will of the user without being strung to the object to be decorated or hung about it.

20

A figure light, formed of a plurality of bulb sockets fastened between two rails in a figured support, is shown in US Patent 5,993,025 to Huang. This lighting device permits the creation of a figured support of any pre-selected shape into which the light bulbs can be fastened.

25

Recently, so-called rope lights became popular, such as those described in US patent 4,812,956 to Chen. These include a plurality of small bulbs, possibly of different colors, molded in a plastic rope. Such rope lights have been used to decorate a number of different types of items, by affixing the rope light to a frame in a desired shape. A few examples include illuminating the ring of a basketball hoop,

30

in US Patent 5,833,558 to Pettie, and illuminating the ribs in an umbrella, in US Patent 5,911,493 to Walker et al.

None of these lighting devices permit a user to change at his or her will the shape of the lighting device, and to retain that shape without affixing light bulbs to a  
5 pre-selected shaped or figured support.

## SUMMARY OF THE INVENTION

According to the present invention, there is provided a lighting device having a selectably changeable shape.

According to one embodiment of the invention, the lighting device includes a  
5 flexible lighting element and an adjustable shape-retaining element coupled to the flexible lighting element.

According to a preferred embodiment, the lighting device includes a flexible lighting element mounted in a flexible covering, the flexible covering including an adjustable shape-retaining element. Preferably, the flexible covering is transparent or  
10 translucent.

According to one embodiment of the invention, the flexible lighting element includes a rope light.

According to another embodiment, the adjustable shape-retaining element is a metal wire.

According to another embodiment of the invention, the adjustable shape-retaining element includes shapeable wires incorporated in at least part of the flexible covering.  
15

There is also provided a method for providing a shapeable lighting device, the method including coupling an adjustable shape-retaining element to a flexible  
20 lighting element.

According to one embodiment of the invention, the method further includes mounting the flexible lighting element in a transparent or translucent flexible covering.

According to another embodiment of the invention, the step of coupling  
25 includes providing an adjustable shape-retaining element in the flexible covering.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	---

Fig. 1 is a schematic illustration of a lighting device constructed and operative  
5 in accordance with one embodiment of the present invention;

Fig. 2b is a side view of a section of the lighting device of Fig. 1 in accordance with another embodiment of the present invention;

Fig. 4 is a cross-sectional view of the lighting device of Fig. 3.

15           The present invention relates in general to flexible lighting devices in which the illuminated portion is flexible and its shape can be selectably changed and retained, as desired. In particular, the flexible lighting device includes a flexible lighting element to which an adjustable shape-retaining element is coupled.

According to another embodiment, the flexible lighting element is mounted in a flexible covering. Preferably, the flexible covering is transparent or translucent. In this embodiment, the adjustable shape-retaining element can be coupled directly to the flexible lighting element, or inserted or sewn or otherwise mounted in the flexible covering.

4

According to the present invention, an adjustable shape-retaining element 20 is coupled to the flexible lighting element. This permits the shape of the flexible lighting element to be changed, and the new shape to be retained without being affixed to a stable support frame, which is not possible with prior art rope light.

5        According to one embodiment of the invention, illustrated in Fig. 2a, which is a side view of a section of the lighting device of Fig. 1, the adjustable shape-retaining element is a metal wire which is molded into the plastic tube 16, so as to form an integral part of the flexible lighting element.

10        According to an alternative embodiment of the present invention illustrated in Fig. 2b, which is a side view of the lighting device of Fig. 1, the adjustable shape-retaining element 20 is a metal wire which is coupled along or around the flexible lighting element 12 by fastening means 22.

15        Fig. 3 is a partially cut away plan view of a lighting device 30 constructed and operative in accordance with another embodiment of the present invention. In this embodiment, a flexible lighting element 32 is mounted in a flexible covering 34. It will be appreciated that flexible covering 34 is transparent or translucent, so as to permit the light from the tiny bulbs molded in the flexible lighting element to be seen therethrough. As known with conventional rope lights, the flexible lighting element is designed so as to output a minimum of heat. Flexible covering 34 can be formed of  
20        any suitable material including, but not limited to, fabric, plastic, and paper.

25        Flexible covering 34 of this embodiment includes an adjustable shape-retaining element 36 incorporated therein. As seen in Fig. 4, a cross-sectional view of the lighting device of Fig. 3, the flexible lighting element 32 is inserted in a narrow sleeve 38 in the flexible covering, and an adjustable shape-retaining element 36, in the form of an elongate wire or strip, which can be bent or curved and retains the bent or curved shape, extends coaxially through the sleeve 38. Alternatively, the shape-retaining element 36 can be coupled directly to the flexible lighting element, as described above, or can be sewn, woven, or otherwise incorporated into the flexible covering.

It will be appreciated that the invention is not limited to what has been described hereinabove merely by way of example. Rather, the invention is limited solely by the claims which follow.